WEN WSC-1-2578
1049N

3400 Forest Insect and Disease Management August 14, 1980

Functional Assistance Trip

Forest Supervisor, Wenatchee NF

On July 30, Gregory Filip, RO Pathologist, visited the Cle Elum Ranger District, Wenatchee National Forest. Purpose of the visit was to examine two areas that were experiencing mortality caused by root diseases. He was accompanied by Jeff Houck, District Silviculturist.

The first area they visited was located east of Lake Kachess (T. 21 N., R. 13 E., sec. 22). The stand they examined was composed of 70-year-old Douglas-fir and grand fir. Many of the trees had top breakage probably due to snow or ice. Some of the trees in the stand, both with broken tops and with full crowns, were dead. Examination of the roots of dead trees revealed the presence of Armillaria root rot caused by *Armillaria mellea*. Some living trees with thin crowns also were found to be infected by *Armillaria*. Although present in a young plantation below this area, laminated root rot caused by *Phellinus weirii* was not found in the second-growth stand. The District is interested in regenerating the area either after a partial cut or a clearcut.

It appears that, as a result of the top breakage and consequent reduction in tree vigor, *Armillaria* is killing trees that normally would be able to resist infection. *Armillaria mellea* is not normally a problem in second-growth, West Side Douglas-fir stands unless other factors are weakening the trees. In this case, it appears that top breakage has predisposed the trees to infection by *Armillaria*. Because of the buildup of inoculumn (infected stumps of top-broken trees), the fungus is beginning to infect and kill trees with full crowns, especially those adjacent to dead infected trees.

If the area is to be clearcut and planted to Douglas-fir, use trees that are well adapted to the site, since *Armillaria* is more damaging in off-site trees. Some mortality caused by *Armillaria* should be expected after 10 years, especially in trees planted adjacent to infected stumps. Mortality should be scattered enough so as not to affect appreciably the stocking. At precommercial thinning age, a decision can be made whether or not to thin those areas containing *Armillaria*-caused

mortality. Evaluations by FIDM are now in progress to determine the effect of precommercially thinning *Armillaria*-infected Douglas-fir plantations. In 10-15 years, the results should be available and hopefully can be applied here when the future stand reaches precommercial thinning age.

If the area is partially cut, it is recommended that Douglas-fir rather than grand fir be retained since *Armillaria* is more destructive in grand fir and there is a greater likelihood of top-decay in the broken tops of grand fir rather than Douglas-fir. Douglas-firs with the best crowns should be retained to ensure maximum tree vigor. After cutting, some windthrow should be expected, especially in trees with root infections. Hopefully, this will not be significant.

The second area they visited was the proposed Last Chance Sale near the Ellensburg RD boundary (T. 19 N., R. 15 E., sec. 18). The stand was a mixed conifer stand composed primarily of Douglas-fir, grand fir, western larch, with some western redcedar and red alder. The stand is uneven-aged with the oldest trees exceeding 200 years. Several small pockets of tree mortality caused by *Phellinus weirii* were examined. According to the District, such pockets occur throughout the entire sale area; over 700 acres.

Disease pockets and a 50-foot buffer zone should be clearcut and replanted to cedar or alder on wet sites or to larch or pine in drier areas. Since it is important to know the location and extent of disease pockets, it is recommended that FIDM pathologists extensively survey the sale area. Such a survey can provide useful information concerning 1) distribution and location of root disease centers, 2) possible presence of other root diseases, 3) a check on the relative susceptibility of the various native tree species, and 4) trees, basal area, and volume per acre of healthy, infected, and killed trees. It may also be possible, with the aid of the District, to mark disease centers on the ground while the survey is being conducted. As discussed with the District, FIDM can begin the survey early next summer.

If further assistance or information is required, please contact FIDM pathologists.

PAUL E. BUFFAM

PAUL E. BUFFAM, Director
Forest Insect and Disease Management

cc: Monty Bickford, SO
Jeff Houck, RD

GMFilip:pj